REMARKS

This Amendment is filed in response to the Final Office Action mailed on October 11, 2006. All objections and rejections are respectfully traversed.

Claims 1, and 7-10 are currently pending.

Claims 2-6 are cancelled, and Applicant reserves the right to bring claims 2-6 in a continuation or divisional application.

Claim Rejections – 35 U.S.C. §103

At paragraphs 2-3 of the Office Action, claims 1, 7, 8, and 10 were rejected under 35 U.S.C. §103 as being unpatentable over Bostaph et al., US Patent Application Publication No. 2002/0076589, published on June, 20, 2002, hereinafter Bostaph, in view of Barber, US Patent No. 6,443,717, issued on Sept. 3, 2002, hereinafter Barber.

Additionally, the present invention, as set forth in claim 1, comprises in part:

> 1. A fluid controlling assembly for use in a direct oxidation fuel cell, which fuel cell has an anode chamber and a cathode chamber, the assembly comprising:
>
> ***an adjustable component at least a portion of which is disposed within the cathode chamber of the fuel cell, and said component, when adjusted, regulates the rate at which fluids travel into and out of the cathode chamber of the fuel cell.***

By way of background, Bostaph discloses an anode side (first electrode 18) and a cathode side (second electrode 22) for use in a fuel cell system. The anode side and the cathode side are separated by a protonically conducting electrolyte membrane. The cath-

ode side sits in a current collector 28 within cap portion 27. The anode side sits in a recess 24 within base portion 14. The fuel cell system uses a methanol concentration sensor for regulating the mixture of fuel sent to the anode side. The methanol concentration sensor communicates with the inlets of the methanol chamber and water chamber to maintain 0.5%-4% methanol in the mixture.

Barber describes a variable valve timing approach to control air flow from compressors and expanders in a fuel cell. The system uses a rotating disc that contains slots, which are either aligned with the ports to connect or block the connection of the port, thereby allowing or blocking the flow of air into the fuel cell.

Applicant respectfully urges that Bostaph and Barber taken alone or in combination do not teach or suggest Applicant's claimed novel ***an adjustable component at least a portion of which is disposed within the cathode chamber of the fuel cell, and said component, when adjusted, regulates the rate at which fluids travel into and out of the cathode chamber of the fuel cell***. In further detail, Applicant's claimed invention describes an adjustable component that regulates the rate at which fluids travel into and out of the ***cathode chamber*** to maintain a proper humidity for a cathode aspect within the cathode chamber. The cathode chamber includes a cathode diffusion layer and a cathode aspect next to the protonically conductive membrane. In other words, the adjustable component within the cathode allows the protonically conductive membrane next to the cathode aspect, which is within the cathode chamber, to remain hydrated. Applicant's invention includes within the **cathode chamber** the adjustable component. Neither Barber nor Bostaph disclose or suggest an adjustable component within the cathode chamber.

Bostaph only discloses regulating the methanol concentration to the anode aspect. Additionally, Barber only discloses regulating flow of water from the expander to remove all water from the expander by the adjustable disk "squeegeeing" the walls of the discharge manifold. Barber states the goal of removing all water from the expander at Col. 6, lines 23-43, which states:

> "For PEM fuel cell applications, high rates of water condensation can be expected within the expander. The primary location of condensed water is on the surfaces within the expansion volume. For this reason, the discharge ports are located in an equally spaced annulus, directly above the cylinder walls as shown in FIGS. 1 and 2. This configuration allows for moving the liquid water out of the cylinder by the shortest distance from the interior of the expansion volume to the discharge manifold. This particular configuration also allows for an effective "squeegee" of the water along the walls into the discharge manifold. Thus any water remaining in the cylinder collects immediately in front of the discharge valve. Upon the next exhaust cycle, the previously entrapped liquid water would be immediately in front of the discharge port and therefore the first to leave the expansion volume when the valve opens. This design prevents the build up of liquid water within the expansion volume. If such a build up were allowed to occur, it would eventually prove detrimental to the expander device. It is advantageous to locate the discharge valve under the expansion cylinder so that gravity aids the process." (Emphasis Added)

The statement above discloses that Barber's goal is to remove all water from the expander. In contrast, Applicant's goal is to maintain a certain humidity for the cathode chamber to hydrate the membrane. As Barber teaches away from Applicant's goal there is no suggestion in Barber to combine Bostaph and Barber together to form Applicant's claimed invention. Additionally, even if combined neither Barber nor Bostaph discloses an adjustable component partially within the cathode chamber.

Accordingly, Applicant respectfully urges that the Bostaph patent application and the Barber patent, taken alone or in combination, are legally insufficient to render the presently claimed invention obvious under 35 U.S.C. § 103 because of the absence in the cited patents of Applicant's claimed novel ***an adjustable component at least a portion of which is disposed within the cathode chamber of the fuel cell, and said component, when adjusted, regulates the rate at which fluids travel into and out of the cathode chamber of the fuel cell.***

At paragraph 4 of the Office Action, claims 9 was rejected under 35 U.S.C. §103 as being unpatentable over Bostaph, in view of Barber, and in further view of Reynolds et al., US Patent No. 5,985,475, hereinafter Reynolds.

Applicant respectfully notes that claim 9 is a dependent claim that depends from an independent claim believed to be in condition for allowance. Accordingly, claim 9 is believed to be in condition for allowance.

All independent claims are believed to be in condition for allowance.

All dependent claims are dependent from independent claims which are believed to be in condition for allowance. Accordingly, all dependent claims are believed to be in condition for allowance.

Favorable action is respectfully solicited.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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